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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,643	10/01/2003	Wan Shick Kim	20061/OF03P111	1719
34431	7590	12/02/2004		
HANLEY, FLIGHT & ZIMMERMAN, LLC 20 N. WACKER DRIVE SUITE 4220 CHICAGO, IL 60606				
EXAMINER MULLER, BRYAN R				
ART UNIT		PAPER NUMBER		
3723				

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/676,643

Applicant(s)

KIM, WAN SHICK

Examiner

Bryan R Muller

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 2,3 and 5-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 10/26/2004 have been fully considered but they are not persuasive. The applicant argues that the initial action filed by the examiner does not meet requirements for proper restriction that the inventions must be independent or distinct as claimed and that there must be a serious burden on the examiner if restriction is not required. The applicant is correct that these requirements are necessary for restriction, but the initial action requires an election of species, which is different from a restriction. The examiner is not required to provide reasons for distinctness because "species, while usually independent, may be related under the particular disclosure" (see M.P.E.P. § 806.4(b)). It is also unnecessary for the examiner to provide reasons of burden in view of M.P.E.P. § 808.01(a), which states, "Election of species should be required prior to search on the merits in all applications containing claims to a plurality of species with no generic claims". Further, the initial action filed by the examiner meets M.P.E.P. form paragraph 8.01 for election of species. Therefore, the applicant request for withdrawal of restriction will not be met, and examiner shall perform a search on the merits on the claims represented by the species elected by the applicant.

Election/Restrictions

2. Claims 2, 3 and 5-10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species 2, there being no allowable

generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/26/2004.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

4. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farkas et al. (5,710,069) in view of Cerni et al. (6,275,290).

5. In reference to claim 1, Farkas discloses an apparatus for measuring slurry particle size during substrate polishing that comprises a pump (13) (slurry supply unit) that controls flow of the slurry through a supply line (12), into an analytical section (14) and out to the work piece in a CMP (chemical-mechanical polishing) tool (15). The analytical section analyzes a cross-section (26, col. 3, line 52) and comprises a light source (17), a photodetector (16) and a computer (20) to control the light source, interpret data and accurately calculate the overall distribution of particles in the mixture (density) (col. 2, line 65 – col. 3, line 3). The pump acts as the claimed slurry supply unit and is controlled by the computer (step 59) to start or stop the pump based on the particle size and density of the slurry (col. 6, lines 28-41). The light source and photodetector act a photo image sensor because they use light to produce and detect

an image of the slurry in the detection cross-section (26). The invention of Farkas does not specifically disclose a slurry injection nozzle, but does disclose that the slurry is supplied to the work piece of a CMP tool, and it is commonly known in the art that a nozzle may be used to supply slurry to a work piece accurately during the CMP process. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to provide a nozzle to supply the slurry to the substrate in order to control the slurry and make application of the slurry more accurate. Farkas also fails to disclose that the photo image sensor is to be located on a bypass diverged from the slurry supply line. Cerni discloses a quality control process for and particle size distribution measuring system for CMP polishing slurries that comprises a photo image sensor, similar to the one disclosed by Farkas that detects particle size and density of slurry during real-time operation. Cerni, however, provides a bypass diverged from the main supply line that passes a portion of the slurry through a cross-section to be monitored and analyzed by the photo image sensor (fig. 3). Providing this by-pass from the main line prevents the system from interfering in any way with the slurry supply or the running of the apparatus. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to provide a by-pass diverging from the slurry supply line of Farkas and relocate the photo image sensor along this by-pass to prevent the sensor from interfering with the main slurry supply flow or the operation of the CMP apparatus.

6. In reference to claim 4, it is inherent that the apparatus to control slurry flow in a CMP process as discussed supra may be used with the method disclosed by applicant in claim 4.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kilham (5,191,388) discloses a photo image sensor apparatus for analyzing particulate matter in slurry flow, Choi et al. (2003-036970) discloses a method for measuring density and particle size in a slurry using ultraviolet light, Lawton (6,347,976) discloses a common CMP system the uses sensors to determine operating properties of the system to control the system and uses a nozzle to supply the slurry to the substrate.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan R Muller whose telephone number is (703)305-0487. The examiner can normally be reached on M-F.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J Hail III can be reached on (703)308-2687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

10. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

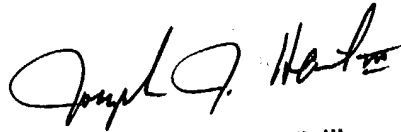
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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BRM BRM
11/15/2004



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